

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of)
)
Toomas WIGELL et al.) Group Art Unit: Unassigned
)
Application No.: Unassigned) Examiner: Unassigned
)
Filed: January 16, 2002)
)
For: Automatic Repetition Request)
Mechanism In A Radio Access)
Network)

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Before examination, please amend this application as follows.

IN THE SPECIFICATION

Please **REPLACE** the heading at page 1, line 3, with the following.

--Background--

Please **DELETE** the heading at page 1, line 11, entirely.

Please **REPLACE** the heading at page 3, line 10, with the following.

--Summary--.

Please **REPLACE** the heading at page 6, line 18, with the following.

-- Detailed Description--.

IN THE CLAIMS

Please **REPLACE** the paragraph at page 10, line 1, with the following.

--What Is Claimed Is:--.

Please **AMEND** claims 1 and 11-13 as follows.

1. (Amended) A method of handling the transmission of Radio Link Control (RLC) Protocol Data Units (PDUs) from a Radio Access Network (RAN) of a mobile telecommunications system to User Equipment (UE), the method comprising:

at a Gateway (GW) of the UTRAN, segmenting RLC Service Data Units (SDUs) into RLC PDUs for transmission to at least one Base Station (BS) of a set of BSs belonging to a handover link set, and combining RLC PDUs received from the at least one BSs into RLC SDUs for transmission to a core network of the system; and

at each of the at least one BS, buffering RLC PDUs received from at least one of the GW and the UE, and implementing an ARQ mechanism at each of the at least one BS to facilitate reliable transmission of RLC PDUs between the UE and the GW, the ARQ mechanism utilizing ARQ status messages sent over the air interface, between the UE and the BS(s), in order to acknowledge successfully transmitted data packets and request retransmission of unsuccessfully transmitted data packets.

11. (Amended) A mobile telecommunications system comprising a UMTS Terrestrial Radio Access Network (UTRAN) and, located in the UTRAN:

a Gateway (GW) arranged to segment RLC SDUs into RLC PDUs for transmission to at least one [or more Base Stations (BSs)] Base Station (BS) of a set of BSs belonging to a handover link set, and to combine RLC PDUs received from at least one of the [or more of those] BSs into RLC SDUs for transmission to a core network of the system; and

a plurality of Base Stations (BSs) arranged to form a soft handover link set for a given User Equipment (UE), each said BS being arranged to buffer RLC PDUs received from at least one of the GW and the UE and to implement an ARQ mechanism at each of the at least one BS to facilitate reliable transmission of RLC PDUs between the UE and the GW, the ARQ mechanism utilizing ARQ status messages sent over the air interface, between the UE and the BS(s), in order to acknowledge successfully transmitted data packets and request retransmission of unsuccessfully transmitted data packets.

12. (Amended) A Gateway for use in a UTMS Terrestrial Radio Access Network (UTRAN) in a mobile telecommunications system, comprising:

means for segmenting RLC SDUs into RLC PDUs for transmission to at least one Base Station (BS) of a set of BSs belonging to a handover link set, and

means for combining RLC PDUs received from at least one of the BSs into RLC SDUs for transmission to a core network of the system.

13. (Amended) A Base Station for use in a UTMS Terrestrial Radio Access Network (UTRAN) in a mobile telecommunications system, comprising:

means for buffering RLC PDUs received from at least one of a GW and a UE; and

means for implementing an ARQ mechanism to facilitate reliable transmission of RLC PDUs between the UE and the GW, the ARQ mechanism utilizing ARQ status messages sent over the air interface, between the UE and at least one other BS, in order to acknowledge successfully transmitted data packets and request retransmission of unsuccessfully transmitted data packets.

IN THE ABSTRACT

Please **AMEND** the paragraph beginning at Page 13, line 4, with the following.

--A method of handling the transmission of Radio Link Control (RLC) Protocol Data Units (PDUs) from a Radio Access Network (RAN) of a mobile telecommunications system to User Equipment (UE) is provided. At a Gateway (GW) of the UTRAN, RLC Service Data Units (SDUs) are segmented into RLC PDUs for transmission to one or more Base Stations (BSs) of a set of BSs belonging to a handover link set, and RLC PDUs received from one or more of those BSs into RLC SDUs are combined for transmission to a core network of the system. At each of the at least some BS, RLC PDUs received from the GW and/or the UE are buffered. An ARQ mechanism is implemented at each of the at least some BS to facilitate reliable transmission of RLC PDUs between the UE and the GW.--

REMARKS

Claims 1-13 are pending. The specification, Abstract, and claims 1 and 11-13 have been amended to place the application in better form for examination. Favorable consideration is respectfully solicited.

It will be understood that the scope of the claims has not been narrowed or even changed by this Preliminary Amendment. Moreover, as already noted the claims have not been amended for reasons related to the statutory requirements for a patent but simply to improve their form and thus facilitate prosecution of this application. Accordingly, those seeking to interpret these claims should not limit them only to their literal scopes.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

By: *Michael J. Crowley*
Michael J. Crowley
Registration No. 49,009

P.O. Box 1404
Alexandria, Virginia 22313-1404
(919) 941-9240

Dated: January 16, 2002

<p>"Express Mail" mailing label No. EL 766105836 US Date of Deposit: January 16, 2002 I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to the Assistant Commissioner of Patents, Washington DC 20231</p> <p><u><i>Judith Harris</i></u> Judith Harris <u>January 16, 2002</u> Date</p>

Attachment to Preliminary Amendment dated January 16, 2002

Marked-up Copy

IN THE SPECIFICATION

Page 1, heading at line 3,
[Field of the Invention] Background

Page 1, heading at line 11,
[Background of the Invention]

Page 3, heading at line 10,
[Statement of the Invention] Summary

Page 6, heading at line 18,
[Detailed Description of a Preferred Embodiment] Detailed Description

IN THE CLAIMS

Page 10, paragraph beginning at line 1,
[Claims] What Is Claimed Is:

1. (Amended) A method of handling the transmission of [RLC PDUs] Radio Link Control (RLC) Protocol Data Units (PDUs) from a Radio Access Network (RAN) of a mobile telecommunications system to User Equipment (UE), the method comprising:
at a Gateway (GW) of the UTRAN, segmenting RLC [SDUs] Service Data Units (SDUs) into RLC PDUs for transmission to at least one [or more] Base [Stations (BSs)] Station (BS) of a set of BSs belonging to a handover link set, and combining RLC PDUs received from the at least one [or more of those] BSs into RLC SDUs for transmission to a core network of the system; and
at [the or] each [said] of the at least one BS, buffering RLC PDUs received from at least one of the GW and [or] the UE, and implementing an ARQ mechanism at [the or] each of the at least one BS to facilitate reliable transmission of RLC PDUs between the UE and the GW, the ARQ mechanism [utilising] utilizing ARQ status

messages sent over the air interface, between the UE and the BS(s), in order to acknowledge successfully transmitted data packets and request retransmission of unsuccessfully transmitted data packets.

11. (Amended) A mobile telecommunications system comprising a UMTS Terrestrial Radio Access Network (UTRAN) and, located in the UTRAN:

a Gateway (GW) arranged to segment RLC SDUs into RLC PDUs for transmission to at least one [or more Base Stations (BSs)] Base Station (BS) of a set of BSs belonging to a handover link set, and to combine RLC PDUs received from at least one of the [or more of those] BSs into RLC SDUs for transmission to a core network of the system; and

a plurality of Base Stations [(BS)] (BSs) arranged to form a soft handover link set for a given User Equipment (UE), each said BS being arranged to buffer RLC PDUs received from at least one of the GW and [or] the UE and to implement an ARQ mechanism at [the or] each of the at least one BS to facilitate reliable transmission of RLC PDUs between the UE and the GW, the ARQ mechanism [utilising] utilizing ARQ status messages sent over the air interface, between the UE and the BS(s), in order to acknowledge successfully transmitted data packets and request retransmission of unsuccessfully transmitted data packets.

12. (Amended) A Gateway for use in [the system of claim 11.] a UTMS Terrestrial Radio Access Network (UTRAN) in a mobile telecommunications system, comprising:

means for segmenting RLC SDUs into RLC PDUs for transmission to at least one Base Station (BS) of a set of BSs belonging to a handover link set, and

means for combining RLC PDUs received from at least one of the BSs into RLC SDUs for transmission to a core network of the system.

13. (Amended) A Base Station for use in [the system of claim 11.] a UTMS Terrestrial Radio Access Network (UTRAN) in a mobile telecommunications system, comprising:

means for buffering RLC PDUs received from at least one of a GW and a UE;

and

means for implementing an ARQ mechanism to facilitate reliable transmission of RLC PDUs between the UE and the GW, the ARQ mechanism utilizing ARQ status messages sent over the air interface, between the UE and at least one other BS, in order to acknowledge successfully transmitted data packets and request retransmission of unsuccessfully transmitted data packets.

032986-021

IN THE ABSTRACT

Page 13, paragraph beginning at line 2.

A method of handling the transmission of [RLC PDUs] Radio Link Control (RLC) Protocol Data Units (PDUs) from a Radio Access Network (RAN) of a mobile telecommunications system to User Equipment (UE) is provided. At a Gateway (GW) of the UTRAN, RLC [SDUs] Service Data Units (SDUs) are segmented into RLC PDUs for transmission to one or more Base Stations (BSs) of a set of BSs belonging to a handover link set, and RLC PDUs received from one or more of those BSs into RLC SDUs are combined for transmission to a core network of the system. At [the or] each of the at least some [said] BS, RLC PDUs received from the GW [and or] and/or the UE are buffered. An ARQ mechanism is implemented at [the or] each of the at least some BS to facilitate reliable transmission of RLC PDUs between the UE and the GW.

[Figure 2]